# Socio-economic Resilience Assessment: Learning materials

## Disaster risk and poverty background readings

**Note to Decision Makers, Executive Summary,** and

**Chapter 3: Risk Identification** in

Jha, Abhas Kumar; Stanton-Geddes, Zuzana. 2013. *Strong, safe, and resilient: a strategic policy guide for disaster risk management in East Asia and the Pacific*. Directions in development; environment and sustainable development. Washington D.C. The Worldbank. http://www-[wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2015/07/10/090224b0828c86a8/1\_0/Rendered/PDF/Strong00safe000Asia0and0the0Pacific.pdf](http://www-wds.worldbank.org/external/default/WDSContentServer/WDSP/IB/2015/07/10/090224b0828c86a8/1_0/Rendered/PDF/Strong00safe000Asia0and0the0Pacific.pdf)

**Threat Multiplier: Climate Change, Disasters, and Poor People, Chapter 3,** and

**Lend a Hand: Poor People, Support Systems, Safety Nets, and Inclusion, Chapter 5** in

Shock Waves: Managing the Impacts of Climate Change on Poverty by Stephane Hallegatte, Mook Bangalore, Laura Bonzanigo, Marianne Fay, Tamaro Kane, Ulf Narloch, Julie Rozenberg, David Treguer, and Adrien Vogt-Schilb. 2016, World Bank, Washington DC. <https://openknowledge.worldbank.org/handle/10986/22787>

## Python, Jupyter Notebook and Pandas

The following section contains background references/tutorials for the programming languages to be used during the training. The tutorials are sorted from more basic to more advanced. More detail will be contained in the README file which will be delivered together with the code.

* **Python** is a computer programming language which is widely used for data analysis. The Socio-economic Resilience Assessment model is written in Python code. Therefore, a basic knowledge of Python and its tools – pandas, numpy and the Jupyter Notebook - is necessary to work with and further develop the model. There are different versions of Python; here, Python 3.5 is used.
* The **Jupyter Notebook** (or simply “Notebook”) is a convenient interface to use the Python language. The Notebook can be run in a web-browser, and the training on the will use the Jupyter Notebook.
* **Pandas** is a tool used to analyze big datasets. It is based on Python and a Python-language called “numpy”.
* **Anaconda** is the name of a package which contains all the tools mentioned above in one installation.

### **Installing Python 3.5 using Anaconda**

The Python language and all necessary tools are comprehensively delivered in a software package called Anaconda. It can be downloaded, together with installation instructions here: <https://www.continuum.io/downloads>

### **Running the Jupyter Notebook**

The training will be conducted using the Jupyter Notebook, which can be used in the window of an internet browser. Basic instructions for how to open and close the Notebook and how to open files can be found here: <http://jupyter-notebook-beginner-guide.readthedocs.org/en/latest/execute.html>

### **Learn Python 3.5**

These instructions demonstrate how to interact with Python, how to make basic calculations, and basic programming techniques such as assigning variables. This can be tried out in a Jupyter Notebook (see the previous point on opening a Notebook): <https://learnxinyminutes.com/docs/python3/>

### **Python basics with a Notebook:**

This video and website also show how to use the Notebook and Python. The video shows what is explained on the website, and the tutorial can actively be followed when opening a Notebook (see above).

Video: <https://www.youtube.com/watch?v=LNncYkzetJg>

Website: <http://nbviewer.jupyter.org/github/TwistedHardware/mltutorial/blob/master/notebooks/jupyter/3.%20Python%20Basics.ipynb>

### **Pandas tutorial with a Notebook:**

The dataset manipulation language – Pandas -- which is part of Python, is explained in this video and website.

Video: <https://www.youtube.com/watch?v=04zBNE2ZHSI>

Website: <http://nbviewer.jupyter.org/github/twistedhardware/mltutorial/blob/master/notebooks/IPython-Tutorial/7%20-%20Pandas.ipynb>

## More on python, notebook, and data analysis

The following links provide more detail and more helpful instructions to understand Pandas and Python.

### **Understanding the Jupyter Notebook**

These are more in-depth instructions on how to use the Notebook

Video : <https://www.youtube.com/watch?v=lmoNmY-cmSI>

Website : <http://nbviewer.jupyter.org/github/twistedhardware/mltutorial/blob/master/notebooks/IPython-Tutorial/1%20-%20Notebooks%20%26%20Cells.ipynb>

### **Official Pandas tutorial and documentation**

The official and complete documentation for Pandas can be found here:<http://pandas.pydata.org/pandas-docs/stable/tutorials.html>

### **Numpy tutorial**

Numpy is a key part of modern Python language, and was introduced to work with datasets. Pandas and all the programming done here is actually based on numpy.

Video: <https://www.youtube.com/watch?v=ZABbRR0tfuc>

Website : <http://nbviewer.jupyter.org/github/TwistedHardware/mltutorial/blob/master/notebooks/jupyter/4.%20Numpy.ipynb>

# Resilience indicator repository

<https://github.com/adrivsh/resilience_indicator_phl>  
Login: resilienceindicatorphl  
Password: df["gdp\_pc\_pp\_nat"]